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10/506,342	09/01/2004	Mihaela Van Der Schaar	US020069US	8815

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EXAMINER	
ABDELNOUR, AHMED F	
ART UNIT	**PAPER NUMBER**
2624	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/506,342	VAN DER SCHAAR, MIHAELA	
	Examiner	Art Unit	
	Farras Abdelnour	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *September 1, 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *September 1, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9 rejected under 35 U.S.C. 102(a) as being anticipated by Buchner *et al.* (Buchner, C.; Stockhammer, T.; Marpe, D.; Blattermann, G.; Heising, G., "Progressive texture video coding," International Conference on Acoustics, Speech, and Signal Processing, 2001. Proceedings. (ICASSP '01), vol.3, no., pp.1813-1816 vol.3, 2001).

Regarding Claim 1, Buchner *et al.* discloses in a layered encoding system having at least one layer comprising a plurality of sub-layers, a method for encoding a video image (200), composed of a plurality of pixel blocks, containing at least one area determined to be significant (210) within a corresponding sub-layer (272, 274, 275) ("The underlying concept of partitioning a representation of transform coefficients into sub-sets with different statistical properties has been successfully employed in both scalable and non-scalable coding approaches," page 1814, column 2), said method comprising the steps of:

a. associating a level of significance with each block of a known size (250, 252) within said at least one significant area (210) ("significance and refinement bits.

Significance bits are those bits indicating whether a given coefficient has already become significant, i.e. whether its most significant bit (MSB) has already shown up in a given bitplane," page 1814, column 2);

b. associating a level of significance with each of at least one successively larger blocks (222, 244) ("H.26L uses a block based motion compensation with variable vector block sizes for each macroblock. The vector blocks can be of square or rectangular shape," page 1814, column 1) dependent upon said level of significance of at least one of said blocks (250, 252) of a known size contained within said successively larger block (222, 244) ("By means of the significance map it is possible to exploit the remaining spatial correlations of the significance information within a subband with the instrument of adaptive context-based arithmetic coding," page 1814, column 2); and

c. mapping each of said associated levels of significance ("The information of the current state of the coefficients will be managed in a binary significance map (one for each subband), as shown in Fig. 3," page 1814, column 2).

Regarding Claim 2, Buchner *et al.* discloses the method as recited in claim 1, further comprising the step off repeating steps a-c for each of said sub-layers ("The main conceptual features of our bitplane coder operating on the texture information can be summarized as follows:

- Distinction between significance and refinement bits,
- Context-based arithmetic coding of the binary decisions,
- Several passes for each bitplane," page 1814, column 1).

Regarding Claim 3, Buchner *et al.* discloses the method as recited in claim 1, further comprising the step of: transmitting said significance level mapping corresponding to said sub-layer (Consult Section 2.4, "Embedding of Bitstream and Rate Control").

Regarding Claim 4, Buchner *et al.* discloses the method as recited in claim 1, wherein said layer encoding system is a Fine Granular Scalable (FGS) System ("The latter approach has been adopted by the MPEG-4 video coding standard under the acronym FGS (fine granular scalability), and it consists of a base layer operating as a conventional hybrid coder and a so-called enhancement layer which progressively encodes the residue between the reconstructed base layer bitstream and the original frame by means of a pure intra coding method [7]," page 1813, column 1).

Regarding Claim 5, Buchner *et al.* discloses the method as recited in claim 4, wherein said sub-layer is a bit-plane (272, 274,276) ("Instead, we use an embedded bitplane coding to code I-frames and the residual error resulting from motion compensation," page 1814, column 1).

Regarding Claim 6, Buchner *et al.* discloses the method as recited in claim 1, wherein said block size is selected from a predetermined set of sizes ("H.26L uses a block based motion compensation with variable vector block sizes for each macroblock.

The vector blocks can be of square or rectangular shape," page 1814, column 1. Also see "The same 4 x 4 block based integer transform as used in the H.26L," page 1814, Section 2.3).

Regarding Claim 7, the method as recited in claim 1, wherein said successively larger block has a known maximum value. Official notice: It is clear that the block size cannot exceed the image size, so it must have a maximum and finite value.

Regarding Claim 8, Buchner *et al.* discloses a system (400) for encoding (100) a video image (200) formed as a plurality of pixel blocks into at least one layer wherein one of said layers is composed of a plurality of sub-layers (272, 274, 276), said sub-layer including at least one significant area (210) ("The underlying concept of partitioning a representation of transform coefficients into sub-sets with different statistical properties has been successfully employed in both scalable and non-scalable coding approaches," page 1814, column 2), comprising :

means (165) for associating a level of significance with each block of a known size (250, 252) within said at least one significant area (210) ("significance and refinement bits. Significance bits are those bits indicating whether a given coefficient has already become significant, i.e. whether its most significant bit (MSB) has already shown up in a given bitplane," page 1814, column 2);

means (165) for identifying a level of significance with each of at least one successively larger block (222, 244) ("H.26L uses a block based motion compensation

with variable vector block sizes for each macroblock. The vector blocks can be of square or rectangular shape," page 1814, column 1) dependent upon said level of significance of at least one of said blocks (250, 252) of a known size contained within said successively larger block (222, 244) ("By means of the significance map it is possible to exploit the remaining spatial correlations of the significance information within a subband with the instrument of adaptive context-based arithmetic coding," page 1814, column 2); and

means (165) for mapping said level of significance ("The information of the current state of the coefficients will be managed in a binary significance map (one for each subband), as shown in Fig. 3," page 1814, column 2).

Regarding Claim 9, Buchner *et al.* discloses the system as recited in claim 8, wherein said mapping includes information regarding each of said blocks of known size and successive blocks having a known level ("The information of the current state of the coefficients will be managed in a binary significance map (one for each subband), as shown in Fig. 3," page 1814, column 2).

3. Claims 11-13 rejected under 35 U.S.C. 102(b) as being anticipated by Atsumi *et al.* ("METHOD AND APPARATUS FOR COMPRESSING AND DECOMPRESSING IMAGES"), WO99/49412.

Regarding Claim 11, Atsumi discloses a decoding system for decoding images transmitted as a layer encoded signal, comprising:

means for receiving data corresponding to a significance mapping of at least one sub-layer of said layered encoding signal ("The inverse quantizer 626 produces coefficients that are sent to a subband declassifier 630," page 49, line 12);

means for decoding said significance map ("The subband declassifier 630 declassifies the coefficients according to a received classification map to produce a set of subbands which are provided to an inverse wavelet transformer 630," page 49, line 13); and

means for reconstructing a corresponding one for said sub-layers from said significance map ("The inverse wavelet transformer 630 performs an inverse wavelet transform on the subbands to obtain image data 632 which can be used to reconstruct an image," page 49, line 16).

Regarding Claim 12, Atsumi discloses The decoding system as recited in claim 11, further comprising:

means for receiving said layer encoded signal transmitted over a network ("Fig. 18 depicts an embodiment of the invention wherein the device includes a transmitting side 800 that encodes the image and transmits the encoded data to a receiving side 802 which displays the image," page 49, line 18).

Regarding Claim 13, Atsumi discloses the decoding system as recited in claim 11, wherein said significance map includes information regarding blocks containing

significant information ("A subband classifier 608 classifies the coefficients and produces a classification map 610," page 48, line 23).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Buchner as applied to claims 1 and 8 above, and further in view of W. Li (Weiping Li, "Overview of fine granularity scalability in MPEG-4 video standard," Circuits and Systems for Video Technology, IEEE Transactions on, vol.11, no.3, pp.301-317, Mar 2001).

Buchner discloses a layered image encoding system where an image is divided into blocks of known size with associated levels of significance. Buchner does not explicitly disclose known levels represent non-zero coefficients.

Li teaches the system as recited in claim 8, wherein said known level is representative of a non-zero coefficient ("These symbols are coded using variable-length code together with the sign bits, as shown at the bottom of the page. Each sign bit is put into the bitstream only once r ight after the VLC code that contains the MSB of the nonzero absolute value associated with the sign bit," page 304, column 2). It would have been obvious at the time the invention was made to one of ordinary skill in the art

to apply Li method of coding nonzero coefficients to Buchner method of layered encoding for the purpose of efficiently transmitted data in less bandwidth.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farras Abdelnour whose telephone number is 571-270-1806. The examiner can normally be reached on Mon. - Thurs. 7:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on 571-272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Farras Abdelnour
Examiner
Art Unit 2624

WENPENG CHEN
PRIMARY EXAMINER

FA

11/18/07